

TRANSPORTATION MULTIMODAL PRIORITIES

Growth Management Department

February, 2017

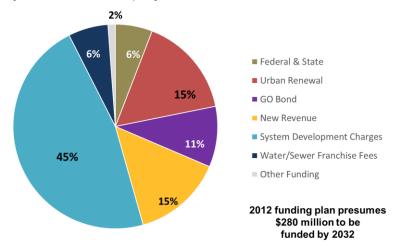


OVERVIEW

Transportation project lists are created using several different modes of transportation including safety, multi-modal, bridge, and system improvement. The purpose of this report is to compile all transportation project list summaries into one report. Full reports can be found online and by request.

FUNDING

The TSP Financial plan assumes \$280 million by 2032 for transportation projects. Transportation projects are funded through Transportation System Development Charges (SDCs), Urban Renewal, Federal and State Funding, Water and Sewer Franchise Fees, Developer Contributed Proportional Share/Pro-Rata Funds, Grants, and Private Partnerships. The following shows the breakdown of expected funding by 2032. The SDC revenue is 45% with the assumption of a SDC increase over time. The other important assumptions are that the existing G.O. Bond is extended and the city finds "new revenues" by 2032 for these projects.



Currently the transportation fund has a balance of about \$15 million. The fund has a balance because of increased building and economic activity and consequently there is a significant increase in gross TSDCs of about \$8 million last year and roughly another \$5-\$7 million this year. Over the last five years staff has worked almost exclusively on the Transportation GO Bond program of projects and the Murphy Road Overcrossing project which since 2011 there has been on average \$10 million annually spent on these two large projects. In the bottom of the recession the gross TSDCs were just above \$1 million. From 2010 to the 2016 the TSDCs were between \$3 to \$5 million annually.



COMPLETED PROJECTS AND PRIORITY STUDIES SINCE 2008

In May 2011 Bend voters passed a General Obligation Bond measure for street improvements throughout the city. This allowed the City of Bend to issue up to \$30 million to upgrade several major street corridors and intersections. The GO Bond projects included:

- Newberry Drive to 27th Street Update to three-lane urban standard with bike lanes and sidewalks
- Reed Market Road / 15th Street New multi-lane roundabout
- 3rd Street to Railroad Update to three-lane urban standard with bike lanes and sidewalks. Relocated and update the intersection of American Lane and Reed Market Road, including moving and reconstructing the American Land Bridge.
- Brookswood Boulevard / Powers Road New roundabout
- Simpson Avenue / Mt. Washington Drive New roundabout
- 18th Street / Empire Avenue New roundabout
- 27th Street Road reconstruction

In 2016, the city and ODOT completed the \$28 million Murphy Road Extension (Parrell to Brookswood). Since 2011, with the C.O. Bond and Murphy Road Extension, the city has spent an average of \$10 million on major road projects. Also the city completed the multimodal safety study; bike and pedestrian priorities, bridge priorities and the new capital project priorities.

TIMELINE





CITY OF BEND COMPREHENSIVE PLAN TRANSPORTATION PLAN GOALS

Mobility and Balance:

- Develop a transportation system that serves all modes of travel and reduces the reliance on the automobile.
- Provide a variety of practical and convenient means to move people and goods within the urban area.

Efficiency:

- Address traffic congestion and problem areas by evaluating the broadest range of transportation solutions.
- Coordinate and design transportation improvements to assure the expenditure of resources in the most cost-effective manner.
- Encourage the development of land use patterns that provide efficient, compact use of land, and facilitate a reduced number and length of trips.

Accessibility and Equity:

- Provide people of all income levels with the widest range of travel and access options within the Bend urban area.
- Provide all transportation modes access to all parts of the community.
- Recognize and respect the natural features over which transportation improvements pass to minimize adverse impacts.
- Design transportation improvements to preserve air and water quality, minimize noise impacts, and encourage energy conservation.

Economic:

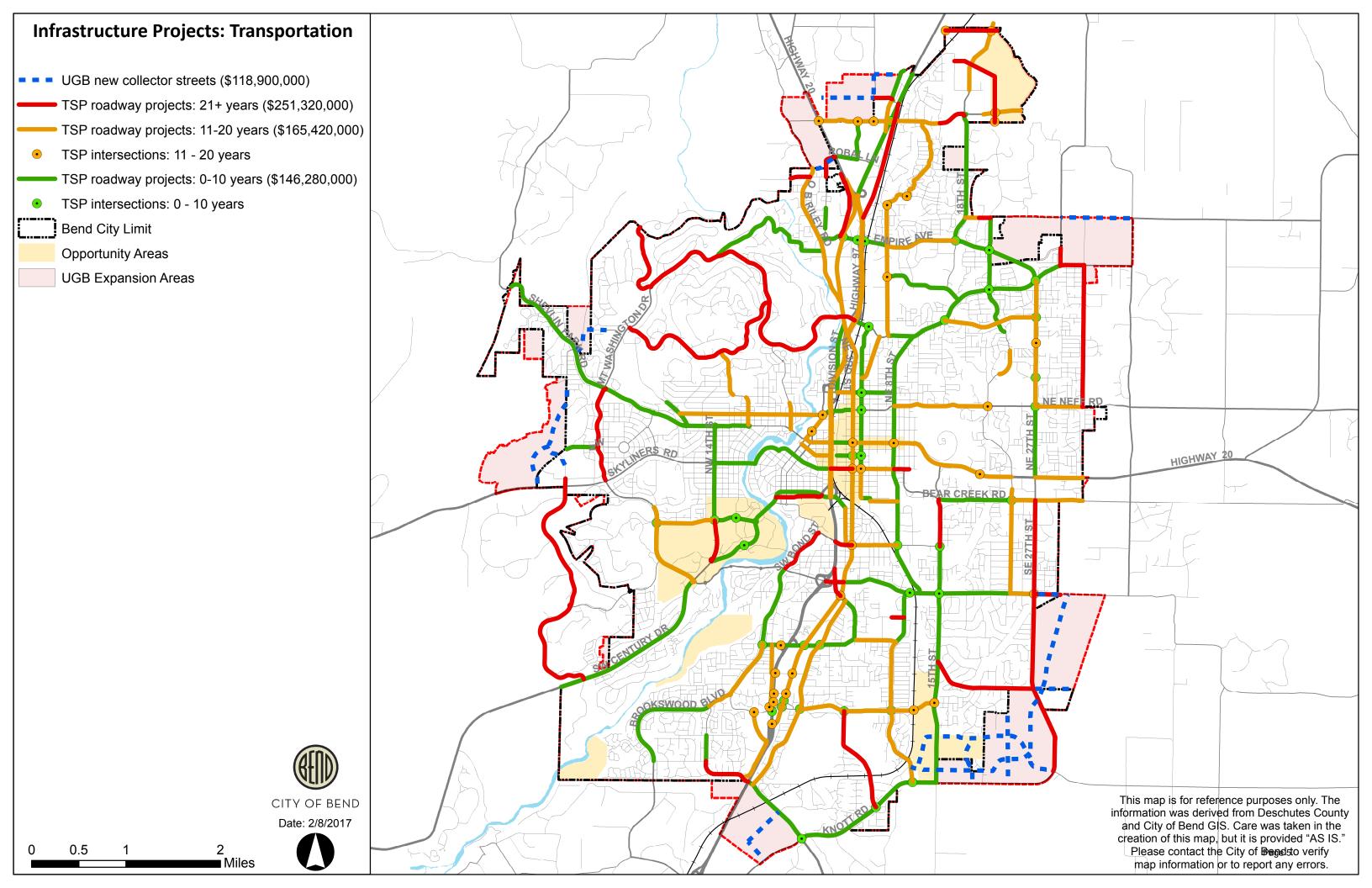
 Implement transportation improvements to foster economic development and business vitality.

Livability:

 Design and locate transportation facilities to be sensitive to protecting the livability of the community.

Safety:

 Design and construct the transportation system to enhance travel safety for all modes.





TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM STRATEGY (2010)

The strategy was created in order to prioritize multi modal road projects using a set of criteria that ranked projects according to benefits and costs. The transportation needs for the next 20 years were determined by the Transportation System Plan (TSP), current City CIP projects, and City Council priorities. There are many deficiencies in the system to be addressed. Consequently, current project needs exceeded the revenue available, requiring a hard look at priorities and the need to make difficult decisions on which capital projects could be moved forward and which projects were deferred until revenue sources were available.

The objectives of this effort are:

- Define revenue estimates, timing, and possible new sources of funds
- Identify strategies for managing revenue, assets and programs
- Define the criteria and process for ranking and implementing projects
- Develop a down-sized two to five year capital improvement program

The City of Bend current funding sources for transportation include:

- Transportation System Development Charges (SDCs)
- Water and Sewer Franchise Fees
- Developer Contributed Proportional Share/Pro-Rata Funds
- Grants
- Private Partnerships

The following evaluation criteria and weighting were developed:

Safety (weight: 100) – Does the project address or provide enhancements to a known and documented safety-needs location or deficient area? (Providing a crossing, reducing vehicle conflicts, provides connects, etc.)

Congestion/Mobility (weight: 48) – Does the project have the potential to improve existing and expected future traffic flow when compared to a no-build condition? Does it improve local and regional traffic throughout the city on different road hierarchies?

Cost/Funding Feasibility (weight: 65) – Does the project appear to offer user benefits greater than the cost? Is the project able to leverage funding through development and/or synergy can be found with other related projects for funding or construction?



Connectivity (weight: 74) – Does the project create more connections or routes to key destinations including redevelopment, commercial, entertainment and residential areas? Does it provide appropriate facilities for vehicles, bicyclists, pedestrians and transit vehicles?

Economic Development (weight: 35) – Is the project consistent with economic development goals? Does it allow for future economic development and provide for future growth? The project should not heavily impact commercial and employment land within the City.

There are five Major Projects that continue to be a priority for the City since 2009:

- Highway 97 and Cooley Road
- Empire Extension (18th to Butler Market Road)
- Reed Market five year phase (Bend Parkway to 27th), (15th to 27th section and the 15th multi-lane roundabout are priorities) – Completed with G.O. Bond
- Murphy Road (Parrell to 15th)
- Murphy Road Overcrossing (Parrell to Brookswood) Completed with Murphy Road Project

There are also a significant number of intersection improvements needed such as roundabouts or traffic signals along these major corridors, 27th Street, Butler Market, Murphy Road, and 3rd street. Improvements vary from full intersection upgrades to timing and modernizing existing signalized intersections to improve capacity and safety. Signal coordination projects along 27th Street for example resulted in maximizing vehicle capacity and reducing emissions.

The following are the current projects (not including the Transportation GO Bond) in the transportation CIP which are in various stages of design or have not been started.

Multi Modal Corridors (projects not underway):

- Newport (College Way to 11th)
- Wilson (2nd to 9th)
- 8th/9th Street (Franklin to Greenwood)

Neff and Purcell intersection improvements (project not underway)

Transportation Safety Projects (projects in design):

• 3rd & Hawthorne pedestrian crossing



- 3rd & Franklin bicycle and signal improvements
- 3rd & Roosevelt pedestrian crossing
- 3rd & Reed Market bicycle improvements
- Neff & Williamson pedestrian crossing
- 27th & Conners pedestrian crossing
- Colorado & Parkway bicycle and pedestrian crossing
- Brosterhous railroad and undercrossing

Also two ODOT funded safety projects:

- 3rd Street pedestrian crossing near Brosterhous
- 3rd Street pedestrian crossing at 3rd and Pinebrook



MAJOR PROJECTS SUBMITTED TO OREGON LEGISLATURE IN 2017

TIER ONE PROJECTS:

Tier One consists of projects that are the highest priorities for the city and have an approved Environmental Impact Statement (EIS).

North Parkway (US 97) Improvements

1A. US97/Cooley mid-term improvements -- \$50 million Improve Cooley and US 97 intersection and RR crossing consistent with ODOT North Corridor EIS Preferred Alternative.

1B. US97/Empire interchange improvements -- \$15 million

Design and construct improvements at the Empire interchange, including widening NB off-ramp, Empire Avenue widening, installing SB on-ramp traffic signal, and improvements to Mervin Samples Road and Sherman Road.

TIER TWO PROJECTS:

Tier Two consists of priority projects that extend and complete major roadways, provide bike and pedestrian overcrossings of the Parkway, improve safety, preserve existing infrastructure, and improve system performance through improved technology.

South Parkway (US 97) Improvements

2A. Bike and Pedestrian Parkway Overcrossings – \$5 million Evaluate locations for bicycle and pedestrian overcrossings of the Parkway between Butler Market Road and Pinebrook Boulevard, including design and construction of one overcrossing.

2B. US97/Murphy – Interchange planning and project implementation -- \$15 million Complete interchange planning and implement priority projects, including constructing NB onramp from half-interchange to US 97, constructing southbound off-ramp and bridge improvements.

2C. Murphy Extension to 15th – \$25 million

Extend Murphy Road from Brosterhous Road to 15th Street. The extension would complete a major east-west corridor and improve transportation circulation in SE Bend.



Empire Avenue Extension

2D. Empire Extension -- \$21 million

Extend Empire Ave from Purcell Blvd to Butler Market Rd/27th St intersection. The extension would complete a major eastwest corridor and reduce reliance on Highway 97 and Highway 20 through the central area of Bend.

3rd Street Improvements

2E1. North 3rd Street Improvements (ODOT) -- \$9 million

Improvements to US 20/3rd Street from Empire Avenue to Greenwood Avenue that include traffic signal replacements, communications and technology improvements, sidewalk construction, and pavement preservation.

2E2. South 3rd Street Improvements – \$13 million

Improvements to 3rd street from Franklin Avenue to Badger Road including pedestrian crossings and safety improvements, lighting and signal replacements.

PAVEMENT PRESERVATION

State Highway Preservation Needs for Central Oregon -- \$50 million

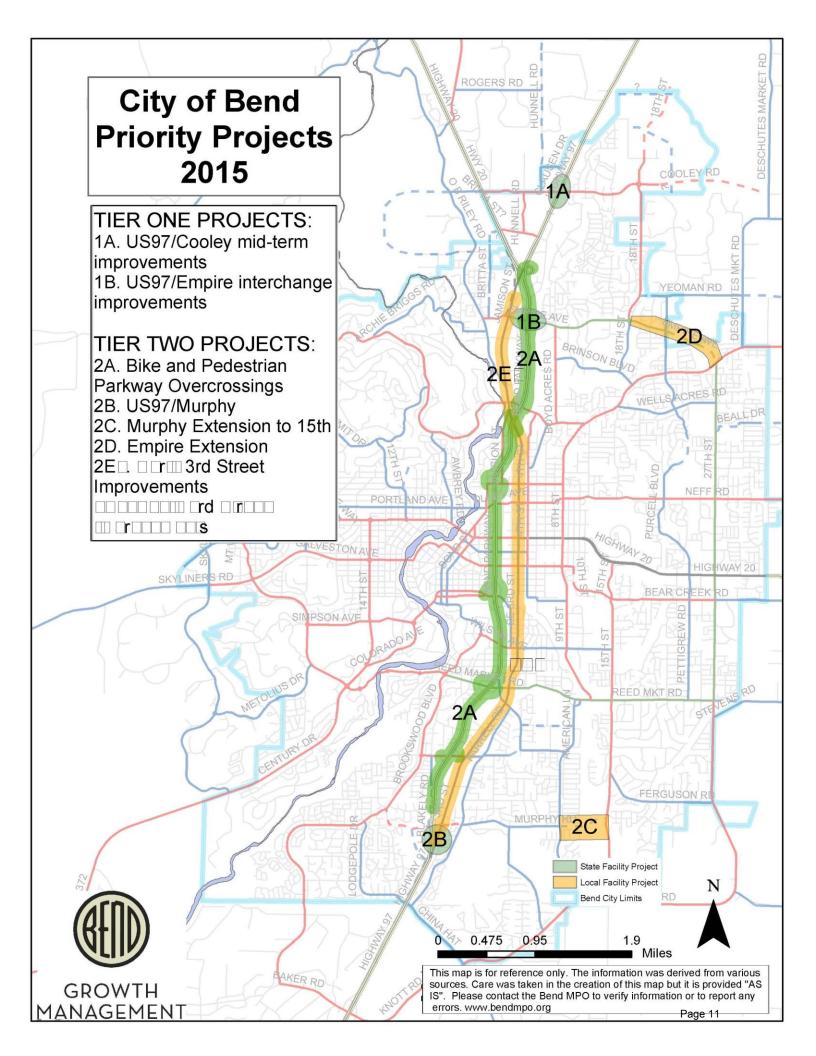
Priority needs identified for the 2018-2021 timeframe total \$75 million.

Bend Street Preservation Needs -- \$80 million

\$80 million is needed to improve existing streets.

TRIP 97 -- \$500,000

Advance planning for governance, financing and mobility measures.





MULTIMODAL TRAFFIC SAFETY STUDY (2012)

The city has very limited staff resources to mitigate for multimodal crashes. Significant staff reduction in recent years caused the transportation division and the Traffic Safety Advisory Committee to reevaluate the crash program. In 2012 a sudy was conducted to evaluate crashes in the city. The purpose of this multimodal traffic safety study is to determine the most significant causes, types and characteristics of crashes in the city and identify how best to mitigate for these crashes given very limited resources.

The goal of the study is to reduce crashes and community costs.

The objectives are:

- Conduct public outreach about safety program
- Develop a list of highest priority traffic safety projects
- Focus on injury crashes
- Create ongoing monitoring and safety assessment methodology

The study found that alcohol and DUII; speeding and bike and pedestrian crashes in Bend are significant.

Staff is working on the following priority projects based on input from the City Accessibility Committee and the 2012 study:

- Neff & Purcell intersection
- 3rd & Hawthorne pedestrian crossing
- 3rd & Franklin bicycle and signal improvements
- 3rd & Roosevelt pedestrian crossing
- 3rd & Reed Market bicycle improvements
- Neff & Williamson pedestrian crossing
- 27th & Conners pedestrian crossing
- Colorado & Parkway bicycle and pedestrian crossing
- Brosterhous railroad and undercrossing



BIKE AND WALKING PRIORITIES (2014)

This is a summary of the Strategic Implementation Plan for Pedestrian and Biking Infrastructure as well as the public process that was followed in the development of this plan. The strategy summarized here achieves a unified pedestrian and biking transportation system through the incremental but systematic deployment of safe and accessible facilities and places high importance on the use of state of the art design techniques to increase user comfort and perception of safety in order to support and encourage increased levels of walking and biking in targeted areas of the community. The approach provides a priority assessment for capital projects and uses multiple deployment mechanisms including the use of alternative funding sources and maximizing implementation during maintenance activities.

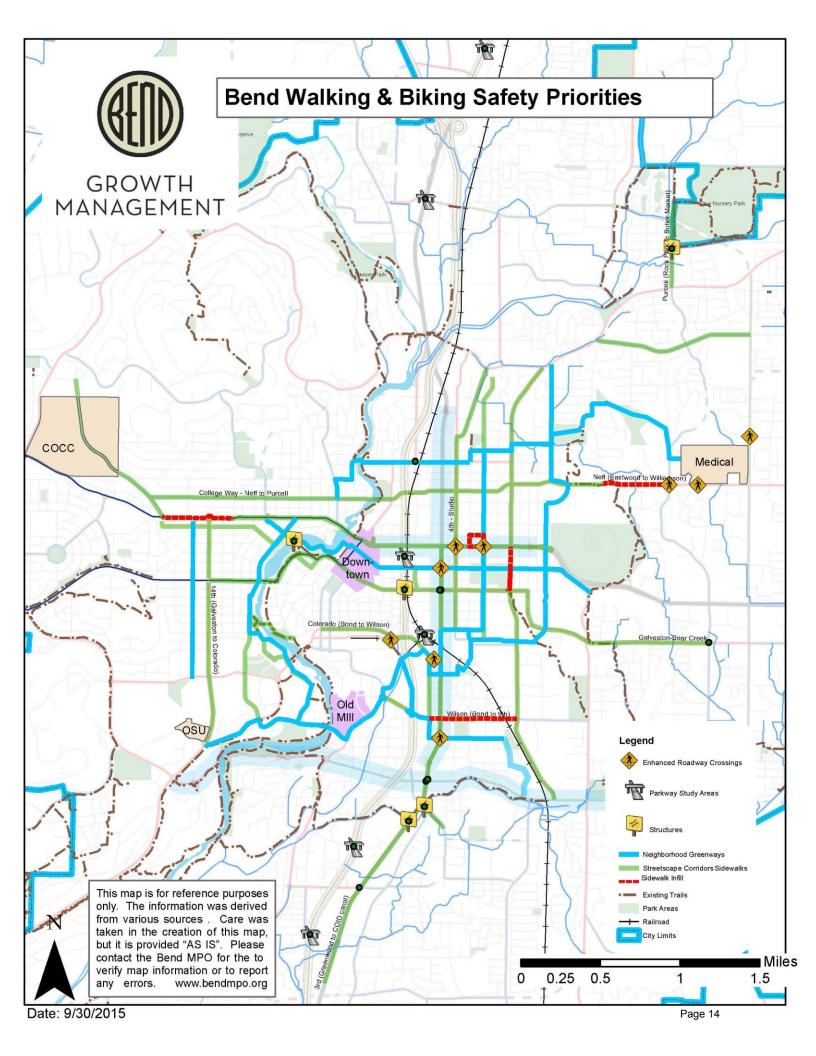


	Table 1							
2014 Walking and Biking Safety Projects and Construction Priorities								
Prioritized System Element	Location	Project Description						
Structures	Drake Park Footbridge 3rd Street canal (south of Brosterhous)							
1	Brosterhous canal (east of 3rd) Add or enhance walking a							
	Purcell Blvd canal (north of Empire)	facilities at these locations.						
	Franklin Undercrossing of RR & Parkway	US97 Study for safety crossings with						
Corridor Study	Parkway over/under crossings (corridor concept)	ODOT, city of Bend and Bend MPO to determine mitigation to congestion and strategies for multimodal comfort/performance & connectivity						
Sidewalks	Bend Community Center (perimeter streets 5 th , 6 th , Greenwood, Kearney)	Add sidewalks.						
	College Way-Portland-Olney-Neff (COCC to St. Charles) Newport-Greenwood (College Way to NE 12th Street)							
	Galveston-Riverside-Franklin-Bear Creek (14th to	Delaytina difa u bath walling a an dibiliin a						
Streetscape Corridors	Purcell)	Prioritized for both walking and biking upgrade-create integrated streetscape						
Corridors	Colorado-2 nd Street (Bond to Wilson) Wilson (Bond to 9 th)	projects (e.g. landscaping, illumination,						
	14th (Colorado to Newport)	enhanced roadway xings & bike lanes, missing sidewalk).						
	3 rd Street (Greenwood to COID canal) 4 th /Studio (Alden to Butler Market)	The second secon						
	8th-9th (Reed Market to Butler Market)	•						
Overlays (not mapped)	Up to 8 overlays	Take advantage of 'clean slate' afforded with fresh pavement surface to facilitate complete biking corridors (e.g. enhanced connectivity, use of state of the art bike lanes such as buffered bike lanes, green conflict zones, bike boxes, and protected bike lanes).						
Stormwater	Wilson Avenue	Smooth pavement transitions for						
Grate Inlet Elevation	Bond Street 8 th /9 th Street							
Changes	Franklin Avenue	stormwater grate inlets located in bike lanes.						
(not mapped)	3 additional corridors							
Trip Facilities (not mapped)	Way Finding Signage	Add way finding signage along key routes to provide travel times and directions to community destinations.						
Neighborhood	COCC to St. Charles Hosp (4 mi) via 1st Street Rapids							
Greenways	COCC to Larkspur Trail (3.2 mi) via Hawthorne OSU-OMD-Coyner Trail via Aune (4 miles)	Deploy 6 initial neighborhood						
	Juniper Swim-Bend High-Marshall High via 6th St (2.3	greenways on local streets and provide enhanced crossings of busy streets.						
	miles) Harmon-Columbia route (2 miles) Kenwood to OMD							
	12 th Street (2 miles) Bend High to Butler Mkt							
Downtown	Bike Parking	Add group bike parking downtown to optimize safety of all users. Upgrade traffic signal equipment and phasing/timing to enhance safety of all users. Add walking safety features such as enhanced crossings, curb						
	Walking Facility Enhancements							
	Bike Facility Enhancements 3rd at Hawthorne	extensions, illumination. Add bikeway facilities throughout downtown.						
Enhanced Roadway	3rd at Roosevelt							
Crossings	Greenwood at 6 th	Enhanced crossings include safety						
	Greenwood at 4 th Neff at Williamson	island, high visibility signing and pavement marking and can include activated flashing lights.						
♣	Neff at Purcell							
	27th at Conners							



BRIDGE PROGRAM (2012)

The bridges in the City of Bend are in good condition, with sufficiency ratings ranging from 50.1 to 98, with an average of 82. The bridge conditions are updated by ODOT for the city.

Sufficiency ratings are on a percentage scale of 0-100 with 0 being a completely insufficient bridge, and 100 being a completely sufficient bridge. The percentage given is based on a possible 55% in structural adequacy and safety, 30% possible in serviceability and functional obsolescence, and 15% possible in essentiality for public use. Bridges scoring a rating of 50-80% are eligible for federal rehabilitation funding, and bridges scoring under 50% are eligible for federal replacement funding.

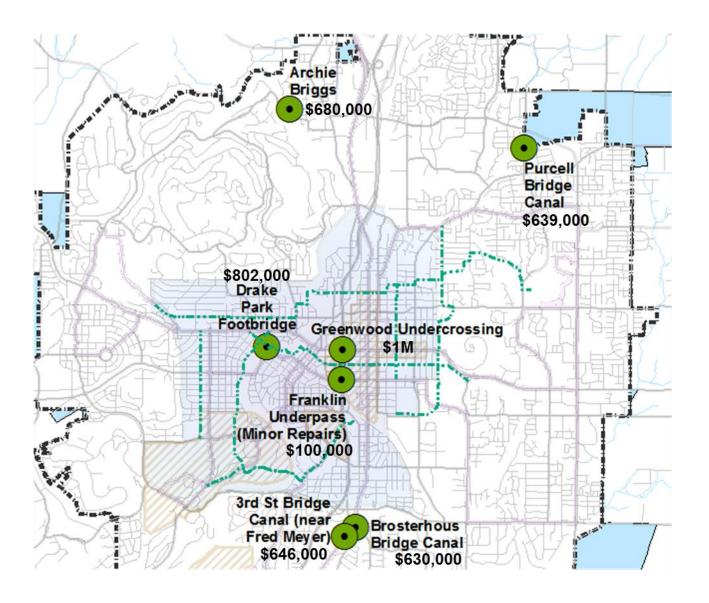
Bridges receive both an operating load and inventory load when they are load rated. The Operating load is the maximum permissible live load to which the bridge for an indefinite period of time.

Currently the Archie Briggs Bridge is the highest priority for replacement. \$700k design has begun and will take 1-2 years. The estimated replacement cost is \$3-5 million pending design. The recently completed American Lane Bridge with the G.O. Bond was the worst rated bridge in the city.

The City also received preliminary designs and cost estimates for the following bridges that are narrow and lack ADA sidewalks or bike lanes:

- Greenwood undercrossing
- Franklin undercrossing
- Hawthorne crossing of railroad and Bend Parkway
- Purcell canal
- Brosterhous canal
- 3rd Street canal
- Drake Park footbridge

This map includes walking and biking priorities as well as Archie Briggs Bridge





INTEGRATED LAND USE TRANSPORTATION PLAN (2016)

This chapter of the Bend Transportation Systems Plan (TSP) includes the amendments necessary to address the requirements of Oregon Administrative Rule 660-12, known as the Transportation Planning Rule (TPR), for the 2016 expansion of the Urban Growth Boundary (UGB). The rule requires the City to demonstrate how it will reduce vehicle miles travelled (VMT) in the 20 year planning period.

To maintain and possibly reduce VMT the following strategies will be implemented:

The approach to implementation will be to identify corridors and centers (e.g. opportunity areas in the core) that have the highest likelihood to reduce VMT. Coordination of the transportation system and land use patterns has the most impact on VMT reduction. The greatest VMT reductions will happen in locations that have some or many of the needed land use and transportation attributes already in place, such as diversity of land uses, density, access to transit and transit routes, connected and walkable design, and accessibility to key destinations. For modest amounts of funding, such areas can greatly reduce reliance on the automobile.

The ILUTP identifies "Proposed Strategies", which are intended to be adopted with the UGB expansion proposal, and also "Additional Strategies for Further Consideration" over the longer term future. Key strategies are summarized on the next page.

ILUTP Element	Proposed Strategies	Additional Strategies for Further Consideration				
		Medium-Term	Long-Term			
Land Use Strategies	Designate and ultimately rezone mixed use opportunity areas identified in UGB project. Adopt efficiency measures identified in UGB project.	Designate additional mixed use areas along transit corridors Adopt design standards for key pedestrian areas and transit corridors. Strengthen connectivity standards for new master-planned neighborhoods.	Consider up-zoning selected neighborhoods where there is potential and community support for infill development.			
Transportation Demand Management (TDM) and Parking Management	Set policy supporting incentives approach to TDM and increasing applicability of TDM programs Conduct analysis and feasibility for parking management and pricing Establish TDM requirements for institutional and employment master plans	Consider transportation SDC reductions for TDM measures Require TDM programs for additional large businesses / institutions Partner to establish TMAs for certain areas Implement parking management programs in key areas based on outcomes of parking study	Implement parking pricing in key areas (e.g. downtown and 3 rd Street / Central Area), based on the results of the parking study.			
Transit	Support and maintain 2016 service improvements Define and enhance transit centers and corridors in opportunity and core areas. Propose new and enhanced transit funding	Implement most components of Bend Transit Plan, including additional hours of service, more frequent peak headways, and two new routes.	Implement further hours of service, improved service and headways on specific routes primarily in opportunity and Core areas, and conversion of 3 routes from bus service to pre-BRT types of service			
Roadway Improvement Management and Policies	Implement selective "road diets" where safety issues have been identified	Develop pedestrian and biking safety projects for the opportunity areas that enhance walking, biking, and transit modal splits.	Continue to develop and implement policies that increase walking and biking safety by modifying street standards			
Complete Streets and Connectivity Investment	Implement programmed projects Prioritize streetscapes in opportunity and core areas and transit corridors.	Evaluate funding mechanisms for complete street improvements Implement planned but not-yet-funded projects, focusing improvements in opportunity areas and adjoining corridors.	Refinement and potential implementation of aspirational projects			

Project	cos	T	TYPE	MAP	Phase
Newport (College Way to 12th)	\$	1,010,000	Sidewalk	2	Programmed
9th (Franklin-Greenwood)	\$	1,010,000	Sidewalk	3	Programmed
14th (Colorado to Newport)	\$	4,000,000	Streetscape		Programmed
Galveston Corridor (Harmon to 14th)	\$	2,700,000	Streetscape	5	Programmed
Wilson (2nd to 9th)	\$	1,480,000	Streetscape	6	Programmed
Murphy Extension to 15th	\$	16,000,000	Extension	7	Planned
Bronzewood extension over Larkspur trail	\$	500,000	Extension	8	Planned
Purcell Extension (Neff to Wells Acres)	\$	3,000,000	Extension	9	Planned
Chase Extension to Brosterhous	\$	3,000,000	Extension	10	Planned
3rd (Greenwood to COID canal)	\$	5,000,000	Streetscape	11	Planned
Commerce (14th to Columbia)	\$		Streetscape	12	! Planned
Newport (NW 12th to Awbrey)	\$		Streetscape	13	Planned
Franklin -Bear Creek Corridor (3rd to 27th)	\$	800,000	Streetscape	14	Planned
Colorado/2nd Corridor (Bond to Wilson)	\$	800,000	Streetscape	15	Planned
OSU-OMD-Coyner Trial via Aune	\$	500,000	BikeBlvd	16	Planned
Juniper Rec-Bend High-Marshall High via 6th	\$	500,000	BikeBlvd	17	Planned
North - South Bike Blvd (Harmon to Old Mill)	\$	500,000	BikeBlvd	18	Planned
Empire extension (Purcell to 27th)	\$	15,000,000	Extension	19	Future
Robal Rd connection (Hwy 20 to O.B. Riley)	\$	2,000,000	Extension	20	Future
4th - Studio	\$	1,500,000	Streetscape	21	Future
8th (Greenwood to Butler Market)	\$	800,000	Streetscape	22	! Future
9th (Wilson to Reed Market)	\$	45,000	Streetscape	22	Future
8th (Greenwood to Butler Market)	\$	800,000	Streetscape	22	: Future
COCC to St Charles via 1st St Rapids	\$	500,000	BikeBlvd	23	Planned
COCC to Larkspur Trail via Hawthome	\$	500,000	BikeBlvd	24	Planned
12th St from Bend High to Butler Mkt	\$	500,000	BikeBlvd	25	Planned
12th St from Bend High to Butler Mkt	\$	500,000	BikeBlvd	25	Planned
NW 15th St (Newport to Simpson)	\$	500,000	BikeBlvd	26	Planned
Hawthorne/3rd	\$	312,000	Safety Crossings and Bike	27	Programmed
Roosevelt/3rd	\$	311,200	Safety Crossings and Bike	29	Programmed
Franklin/3rd	\$	574,000	Safety Crossings and Bike	28	Programmed
Reed Market/3rd	\$		Safety Crossings and Bike		Programmed
2nd Street (Franklin to Revere)	\$		Streetscape		Planned
4th Street (Franklin to Butler Market)	\$		Streetscape		Planned
Franklin Undercrossing Bridge		5,000,000			Planned
Greenwood Undercrossing Bridge	\$	5,000,000			Planned
3rd Street Canal Bridge	\$	2,500,000		3	Planned
Drake Park Bridge	\$	5,000,000			Planned
Hawthorne Crossing	\$	6,000,000			Planned

Figure 11: Complete Streets Projects

Complete Streets Project Map

